

GALILEO NANOTECH

Company teaser

October 2012



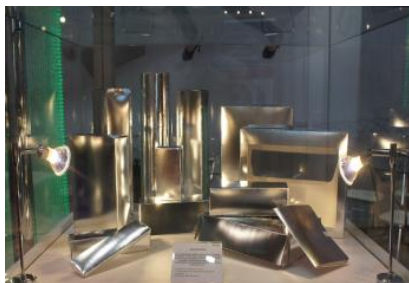


- Galileo Nanotech is established in August 2009;
- The Company has launched a factory in Hot'kovo, Moscow region, in the end of 2011;
- Current capacity is more than 11 ths tons of metallized paper and cardboard;
- RFID antennas and tags production is planned to be launched in the 2013.

Products (current)

Metallized paper

- Label paper for alcoholic and non-alcoholic beverages;
- Inlayer for tobacco packaging.



Metallized cardboard

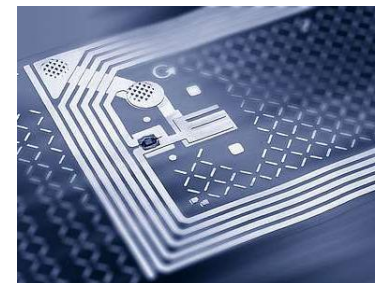
- Decorative packaging cardboard;
- Cardboard for tobacco packaging.



Products (planned)

RFID antennas and tags

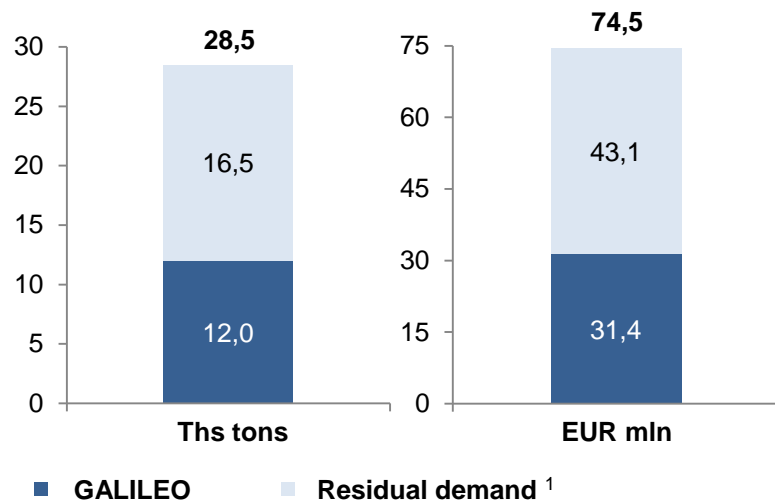
- Logistics, transport;
- Medicine, industry.



Markets overview

Metallized paper

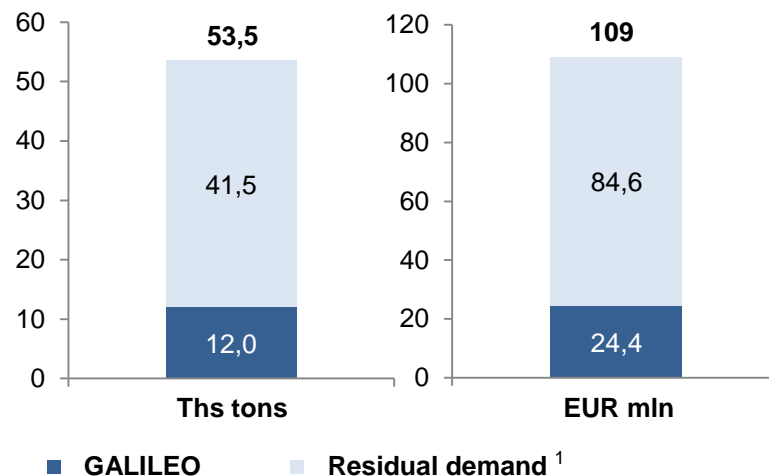
Target market overview



- Target market for metallized paper is Russia, CIS and Eastern Europe markets;
- Key driver is import substitution and logistics advantages.

Metallized cardboard

Target market overview



- Target market for metallized cardboard is Russia;
- Metallized cardboard can be used in almost all key applications and therefore the expected consumption growth is based on import substitution and on crowding out cardboard laminated by metallized film.

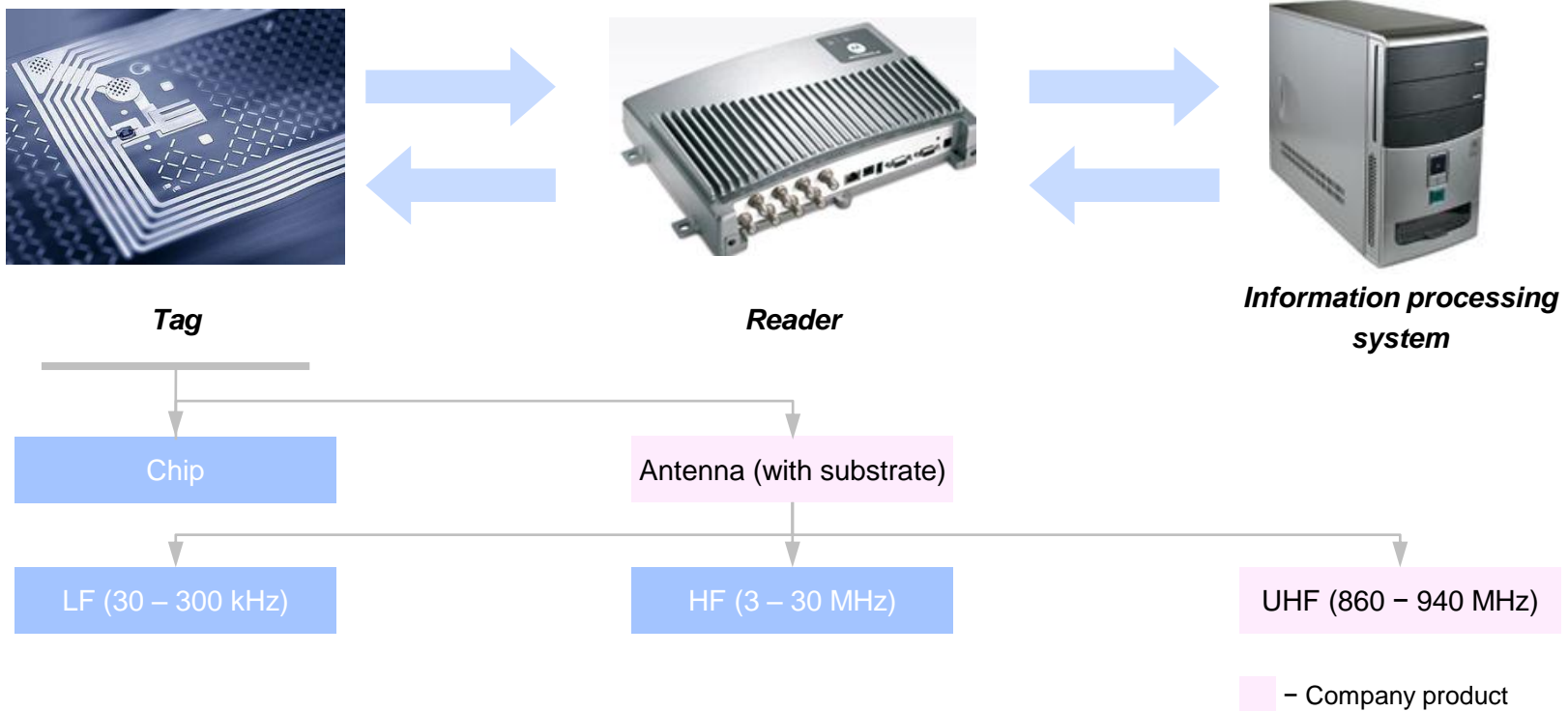
Target markets CAGR is expected to be no less than 5%

¹If all of the capacity is on that type of product

UHF RFID antennas and tags

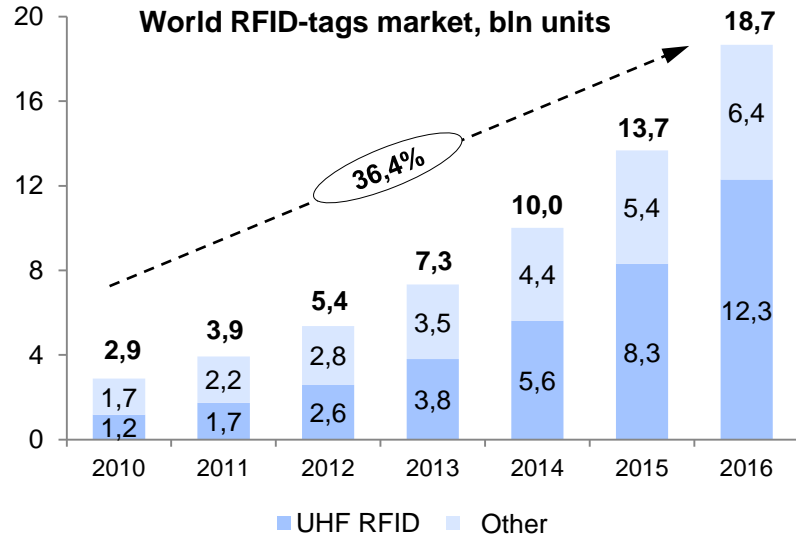
- RFID, or Radio Frequency Identification, is a technology using radio frequency electromagnetic emission for reading and recording of information with a small device called the RFID-tag;
- RFID-system consists of the tag, reading device and respective software;
- RFID-systems are applied for identification and asset inventory.

Principle of the RFID-system operation



UHF RFID antennas and tags

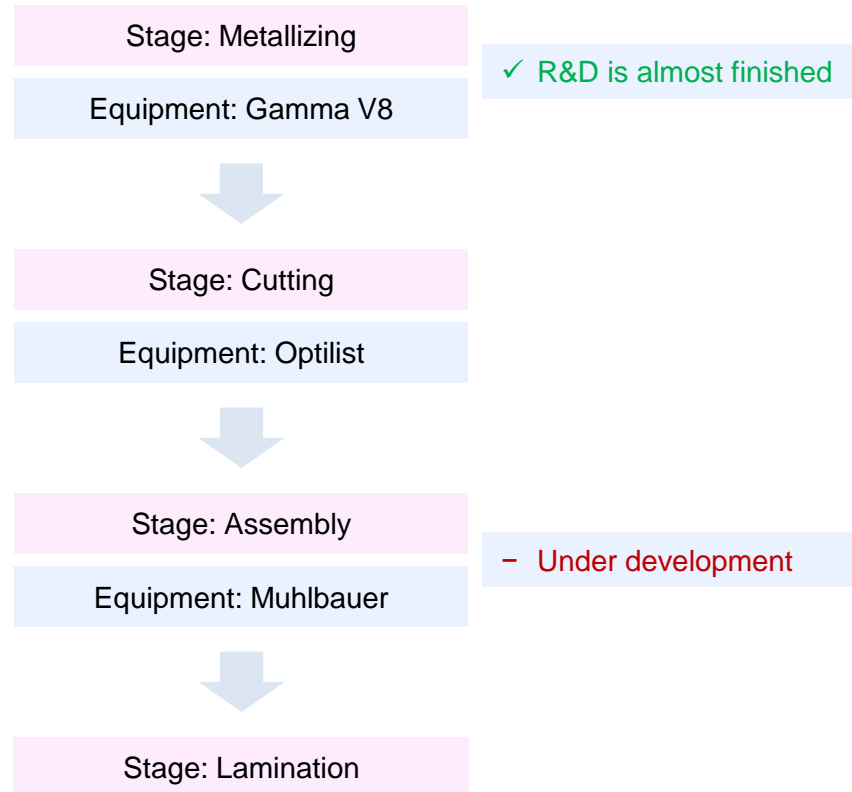
RFID market



Key facts

- At the moment RFID market is evaluated at 5,4 bln units. By the end of 2016 the market is expected to be 18,7 bln units (CAGR is 36,4%);
- UHF RFID tags share is expected to be increased from current 48% up to the 66% by the end of 2016 due to the growth of logistics and transport markets (applications requiring greater distance reading).

Technology process



Technology overview

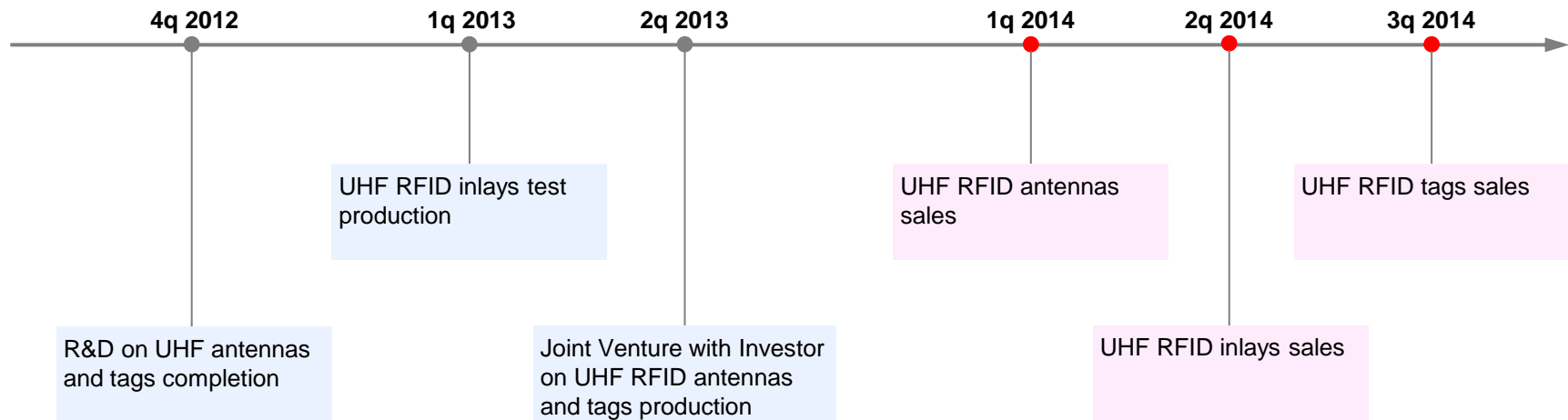
- Today most manufacturers of RFID antennas use outdated technology – etching metal around the antenna profile;
- GALILEO technology (technology of selective metallization Flexomet ®) is a fundamentally new technology of RFID antennas by plating plastic substrate with a thin layer of Al or Cu (technology roll-to-roll) and has a number of competitive advantages over competitors.

Competitive advantages of Flexomet®

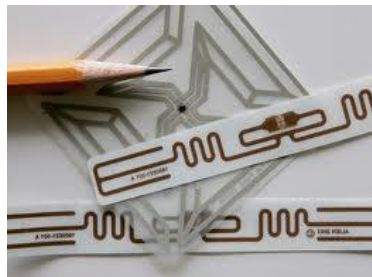
Parameters	Flexomet® technology	Etching technology	Conductive inks technology
Technology description	<ul style="list-style-type: none"> ▪ Plating plastic substrate with a thin layer of Al or Cu (technology roll-to-roll); 	<ul style="list-style-type: none"> ▪ Galvanic metal layer (Al or Cu) on a plastic film – etching method; 	<ul style="list-style-type: none"> ▪ Printing on a substrate with the conductive ink, consisting of silver, rubber and solvent;
Frequency	<ul style="list-style-type: none"> ▪ UHF (850-950 MHz) ▪ Near-UHF (several cm) 	<ul style="list-style-type: none"> ▪ UHF (850 – 950 MHz) 	<ul style="list-style-type: none"> ▪ HF (13,56 MHz) ▪ LF (125 kHz)
Working range	<ul style="list-style-type: none"> ▪ From 1 cm to 7,2 m 	<ul style="list-style-type: none"> ▪ From 1 cm to 8 m 	<ul style="list-style-type: none"> ▪ From 1 cm to 70 cm
Limitations	<ul style="list-style-type: none"> ▪ Increased power consumption in comparison with etching technology (up to 15%); ▪ Technological limitations on HF RFID production, under development. 	<ul style="list-style-type: none"> ▪ High equipment cost; ▪ Too many technological steps; ▪ High production cost; ▪ Low productivity; ▪ Solvent need to be utilized. 	<ul style="list-style-type: none"> ▪ Substrate drying slows the process; ▪ Conductivity decrease of antenna; ▪ Solvent need to be utilized; ▪ Small working range.
Production cost of antenna	<ul style="list-style-type: none"> ▪ 0,0025 EUR/pcs. ✓ 	<ul style="list-style-type: none"> ▪ 0,005 – 0,015 EUR/pcs. 	<ul style="list-style-type: none"> ▪ 0,01 – 0,02 EUR/pcs.

RFID business time schedule

- Current status of RFID business:
 - UHF RFID antennas prototypes developed;
 - Main characteristics and optimal operation conditions are tested;
 - Several UHF RFID antenna designs are developed.
- GALILEO NANOTECH is ready for Joint Venture with strategic investor on UHF RFID antennas and tags production;
- Success is guaranteed by combination of GALILEO technology competitive advantages and Investor market knowledge with distribution channels.



Contacts



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